



# ESTABLISHMENT OF ATHLETIC PERFORMANCE PARAMETER NORMS OF COLLEGE RODEO ATHLETES

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## Abstract

Rodeo dates back to the early 1700s, where the origin of the sport was established by the grueling ranch work that involved physically handling uncooperative livestock. The evolution of these ranching activities has organized into the multi-event sport of rodeo, which is now well-established and recognized as a competitive sport for high-school, college, and professional level athletes. Despite the growth in popularity and the structural organization, the sport of rodeo has received limited scientific attention in regards to the physical capacity necessary to compete in the sport. **PURPOSE:** The purpose of the current investigation was to establish rodeo athletic performance norms by examining various athletic performance parameters of rodeo athletes from a mid-size university in the southwest region. **METHODS:** Athletes (n = 131) were recruited through verbal communication at the annual rodeo team meeting, and volunteers reported to the Kinetic Performance Laboratory on assigned testing days. Participants were grouped according to rodeo events: bull riding (BU; n = 11), bronc riding (BC; n = 19), steer wrestling (SW; n = 10), calf roping (TD; n = 6), team roping (TR; n = 11), barrel racing (BR; n = 23), breakaway roping (BA; n = 34), and goat tying (GT; n = 16). Three testing sessions (48 hours intersession rest) were utilized to collect athletic performance measures. Participants maintained individual dietary habits, and refrained from alcohol and caffeine for 24 hours prior to testing sessions. Anthropometrics, vertical jump height, average power and peak power (vertical jump scores calculation), 30-yd sprint, percent body fat, maximal muscular strength (bench press, squat, and deadlift), balance, and reaction time (RT) were analyzed to update athletic performance norms for rodeo athletes and evaluate differences between events. **RESULTS:** The descriptive results provided a robust athletic profile for rodeo athletes, as well as athleticism per rodeo event. A MANOVA identified statistically significant (p < .05) difference among rodeo events for all athletic performance parameters, except RT. An LSD Post Hoc revealed various differences between rodeo events and athletic performance. Among many, significant difference in height was explained between SW and all other events, except TR (SW = 71.6 ± 2.0; TR = 70.0 ± 3.31). GT 30-yd sprint was not significantly different for other events, except BU (p = .02; GT: 4.76 ± .41s; BU: 3.86 ± .25s). SW and TD were not significantly difference in deadlift (SW: 452 ± 107.8lbs; TD: 426.3 ± 119.3lbs), but differed significantly (p < .01) from other events. BC and BU performed similar in squat and deadlift, yet were significantly different from remaining events. **CONCLUSION:** These results provide a concurrent, comprehensive athletic performance profile for the rodeo athlete. The results showcase areas deserving of critical attention when preparing rodeo specific strength and conditioning. Additionally, the revealed differences further explain the physical demands of each rodeo event. **PRACTICAL APPLICATIONS:** Reaction time did not differ among rodeo events, signifying the importance of implementing RT training for rodeo athletes. Also, the parallels between rodeo events insinuates training can be conducted similarly for different events. This study provided a novel overview of the rodeo athlete, highlighting the need for additional rodeo research to understand appropriate exercise prescription.

## Introduction

- The origin of rodeo was established through the evolution of grueling ranch work involving physically handling uncooperative livestock into multi-event sport of rodeo. This progression has inspired empirical examination of the sports.
- Previous reports have identified severity, frequency and type of injuries among rodeo athletes and rodeo events.
- Of recent, event specific and sex specific Functional Movement Screening norms have been established collegiate rodeo athletes. Additionally, the effects of Rodeo Specific Resistance Training on CSA, Body Composition, and MVC has been examined.

## Intro Cont.

- Meyers (1992) published Exercise Performance of Collegiate Rodeo Athletes 30 years ago and examined: anthropometric status and body composition, cardiovascular endurance, resting blood chemistry, coronary risk, muscular strength and power, and visual reaction/movement time.
- Purpose of the Study:** Despite the growth in popularity, and in comparison to other sports, the sport of rodeo has received limited scientific attend in regards to the physical capacity necessary to compete in the sport. Therefore, the purpose of the current investigation was the establish athletic performance norms for rodeo athletes by examining various athletic performance parameters of rodeo athletes from a mid-size university in the southwest region.

## Methods

### Participants:

- N = 132 (56 men, 76 women)
- Participants were grouped according to rodeo events
  - Males:** bull riding, bronc riding, steer wrestling, calf roping, team roping
  - Females:** barrel racing, breakaway roping, goat tying

### Procedures:

- IRB approval, Informed consent completed
- All participants familiarized to procedures and equipment

### Testing Sessions & Measured Variables:

- Session 1:**
  - Anthropometrics
  - 3 Site Skinfold Testing (Jackson & Pollock, 1985)
  - Vertical Jump Height
    - Calculated - Average power & Peak power (Harman, 1991)
  - 30-yd acceleration (Haff & Triplett, 2016)
- Session 2:**
  - Maximal Muscular Strength (Haff & Triplett, 2016)
    - Squat, Bench Press, Deadlift
- Session 3:**
  - Reaction Time
  - BESS Balance Test (Haff & Triplett, 2016)
  - Anaerobic Capacity/Wingate Test

\*48 hours rest between sessions to account for induced fatigue.

### Statistical Analyses

- Mean and standard deviations were calculated to establish updated and advanced athletic performance norms for rodeo athletes.
- MANOVA recognized differences in performance outcomes between rodeo events
- LSD post-hoc analyzes were performed when appropriate (p < .05).

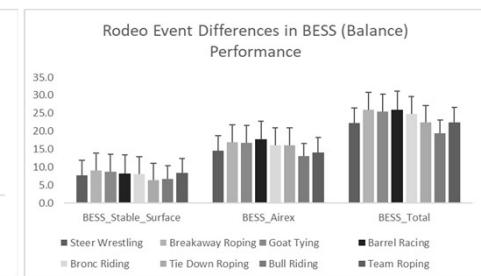
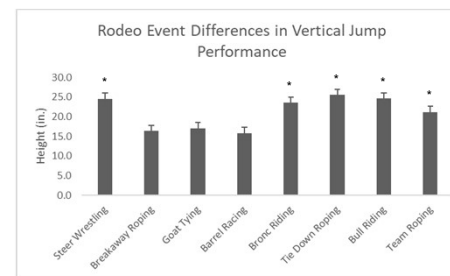
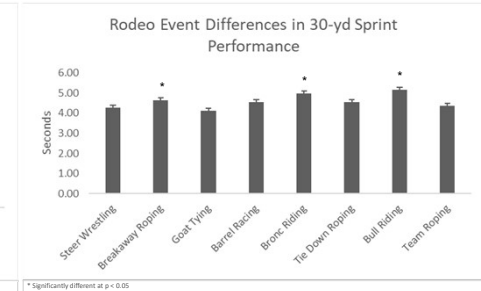
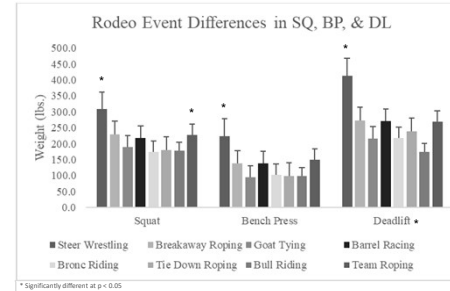
## Results

### Descriptive Anthropometric and Body Composition data for Collegiate Rodeo Athletes by Event <sup>a</sup>

Variables	Events							
	Steer Wrestling (n = 10)	Breakaway Roping (n = 34)	Goat Tying (n = 16)	Barrel Racing (n = 23)	Bronc Riding (n = 19)	Tie Down Roping (n = 6)	Bull Riding (n = 11)	Team Roping (n = 11)
Age	21.4 ± 1.3	20.5 ± 1.3	20.4 ± 1.0	19.3 ± 1.6	20.0 ± 1.2	20.7 ± 1.5	19.8 ± 1.7	20.6 ± 1.4
Height (in)	71.6 ± 2.0	64.4 ± 1.5	63.9 ± 3.8	65.6 ± 3.4	68.0 ± 3.8	68.4 ± 2.7	69.0 ± 2.0	70.0 ± 3.3
Weight (kg)	203.7 ± 20.4	142.2 ± 13.0	137.8 ± 18.2	141.5 ± 22.8	160.3 ± 26.3	167.0 ± 30.8	155.3 ± 10.1	181.3 ± 53.2
BMI	28.0 ± 3.1	24.1 ± 2.1	24.0 ± 4.6	23.2 ± 4.1	24.3 ± 3.6	25.0 ± 3.7	21.0 ± 7.1	25.9 ± 7.1
Body Fat (%)	15.3 ± 3.2	25.2 ± 4.5	23.4 ± 5.3	25.9 ± 4.3	11.4 ± 2.3	15.4 ± 5.5	11.9 ± 4.8	17.6 ± 6.1

<sup>a</sup> Values are means ± SD.

<sup>b</sup> BMI, Body Mass Index.



## Conclusions and Practical Applications

**CONCLUSION:** These results provide a concurrent, comprehensive athletic performance profile for the rodeo athlete. The results showcase areas deserving of critical attention when preparing rodeo specific strength and conditioning. Additionally, the revealed differences further explain the physical demands of each rodeo event.

**PRACTICAL APPLICATIONS:** Reaction time did not differ among rodeo events, signifying the importance of implementing RT training for rodeo athletes. Also, the parallels between rodeo events insinuates training can be conducted similarly for different events. This study provided a novel overview of the rodeo athlete, highlighting the need for additional rodeo research to understand appropriate exercise prescription.